

Course number		U-LAS15 10004 LE58					
Course title (and course title in English)		Introduction to Earth Science B-E2 Introduction to Earth Science B-E2			Instructor's name, job title, and department of affiliation		Graduate School of Science Professor,ZWINGMANN , Horst Friedrich August
Group	Natural Sciences			Field(Classification)		Earth Science(Foundations)	
Language of instruction	English			Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture (Face-to-face course)			Year/semesters	2025 • Second semester
Days and periods	Wed.1		Target year	Mainly 1st & 2nd year students		Eligible students	For science students
[Overview and purpose of the course]							
<p>The Earth System is divided into four subsystems: atmosphere, hydrosphere, geosphere and biosphere. This lecture focuses on the first three subsystems and introduces their interactions in the different time scales. In particular, this lecture will be outlined interaction and material circulation between these three subsystems, and transition and change in the global environment over the 4.6 billion year history of the Earth.</p>							
[Course objectives]							
<p>The objective of this course is to develop an understanding of fundamental geological concepts and processes of plate tectonics and its influences on the dynamic Earth. The lectures comprise a general introduction to plate tectonics theory and selected detailed field case studies from Japan and the world.</p> <p>At the end of the semester, students should be able to understand fundamental geological concepts and processes, within an Earth System context, and how the application of physical, chemical and biological sciences can be applied to solve geological problems.</p>							
[Course schedule and contents)]							
<p>The Earth System is broadly divided into four subsystems: atmosphere, hydrosphere, geosphere and biosphere. There is exchange of both matter and energy within those subsystems, in different time scales.</p> <p>The main contents of this lecture are:</p> <ol style="list-style-type: none"> 1. Interactions and material circulation among these three subsystems of the Earth System 2. Consist of the global environment <ul style="list-style-type: none"> • Formation of the Earth • Environment of the early Earth 3. The climate change in Earth's history <ul style="list-style-type: none"> • Ice Age vs. No Ice Age • Glacial/Interglacial periods fluctuations • Climate change after the last glacial period <p>The contents of each topic will be delivered in three lectures.</p>							
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Introduction to Earth Science B-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Students are able to (1) demonstrate understanding of basic geological processes and relationships at global to local scale including how this knowledge can be applied to issues of relevance to Japan; 2) identify and interpret common geological features and processes within the Earth System context and (3) demonstrate an understanding of the complex Earth System and its processes at a regional and global scale now, in the past, and in the future. The evaluation method comprises (1) an in class assignment (40%) and (2) written examination during the official examination term (60%). If the situation does not allow a face-to-face examination, a virtual 10 min presentation by each student in class is substituted for the final examination.

[Textbooks]

Not fixed

[References, etc.]

(References, etc.)

Introduced during class

[Study outside of class (preparation and review)]

This course has been designed to allow students to integrate the concepts covered in lectures with own readings. A joint group project is developed by students based on data from a range of sources. Students will be supported throughout the project by discussions with your lecturer and associated students.

[Other information (office hours, etc.)]

to be confirmed

[Essential courses]